the <u>custom</u> system configuration parameters stored in the second non-volatile memory into the volatile memory for storage therein.

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<div align="center">REMARKS</div>

Claims 1-13 are pending. Claims 1 and 3-6 have been amended to more particularly claim the invention. The substitute abstract corrects a typographical error in the title. No new matter has been entered.

In the Office Action mailed September 30, 1998, the Examiner rejected claims 1 and 2 under 35 USC § 102(a), (b), and (e) as being anticipated by Bealkowski et al (US 5,327,531, Bealkowski). The Examiner then rejected the remainder of the pending claims under 35 USC § 103(a) as being suggested by Bealkowski in combination with the ordinary skill in the art, or Bealkowski in combination with the applicant's admitted prior art. The applicant respectfully traverses these rejections.

<u>Applicant's Disclosed Embodiment</u>

Computer systems typically include a wide variety of I/O devices. When the computer system is booted, system configuration information is loaded to the microprocessor to enable the computer system to communicate with the I/O devices.

To create the system configuration, basic configurations are originally loaded from a BIOS. Then, configurations specific to those I/O devices that are included in the computer system are determined, either through a "plug and play" I/O setup system, an automated I/O setup system, or a manual I/O setup system. Once the system configurations specific to the particular computer system are created, these custom system configurations are stored in a memory to enable quick loading each time the computer system is booted. Oftentimes, a battery-powered CMOS RAM is employed to store the custom configuration files because it can store these configuration parameters for a relatively long time (several years) even when the computer is powered off, and because it can be easily changed as other I/O devices are added to or removed from the computer system.

Although a CMOS RAM provides a stable memory for storing the custom system configurations, it is not infallible. The CMOS RAM can lose the data it stores when it

has a power interruption, such as the battery voltage dropping below a working threshold, or other reasons. Although these losses occur infrequently, they require the computer user to once again setup the custom system configurations after only the basic configurations have been loaded from the BIOS. This is time-consuming and can be frustrating for the computer user.

Embodiments of the invention employ a very sophisticated apparatus for ensuring that, once loaded, the custom system configurations are available to the computer system. As discussed on page 10 of the specification, and with reference to figure 2B, embodiments of the invention provide for the storage of the *custom* system configurations in both the CMOS RAM *and* in the Flash EEPROM, thereby providing *two* copies of the custom system configurations.

In still other embodiments, a further non-volatile memory is also employed as a backup to both the CMOS RAM and the flash EEPROM. Thus, if *both* the CMOS RAM copy of the custom system configurations and the flash EEPROM copy of the custom system configurations are corrupt, the basic system configurations stored in this third memory will be used in the BIOS POST. This allows the computer user to recreate the custom system configurations. Once the custom system configurations are created, embodiments of the invention store the custom system configurations in *both* the CMOS RAM and the flash EEPROM.

The Cited Reference

The Examiner cited Bealkowski. This reference is an example of the prior art discussed in the application and teaches a very narrow problem and a very narrow solution.

Bealkowski uses a flash ROM to store system initialization microcode. A backup copy of the original system initializations is stored in an EPROM. Changes to the system initializations in the flash ROM are made by a software utility that first erases the flash ROM and then stores the updated system initializations. It is not possible for the computer user to store the *updated* system initializations in the EPROM.

If the flash ROM becomes corrupt by a power failure during an update of the system initializations, Bealkowski teaches a system that allows the computer system to boot

using the original system initialization microcode that is stored in the EPROM. Since updating the flash ROM is relatively slow and takes several minutes to complete (See, for example, Column 3, Lines 7-8 of Bealkowski), corruption of the flash ROM during an update is a likely occurrence.

Although the flash ROM can be updated by the computer user, the EPROM requires removal from the computer system and special programming equipment in order to be changed, and thus updating the EPROM is beyond the capability of the computer user.

In this regard, Bealkowski is a good example of the prior art discussed on page 2 of the specification. Beginning on line 15, the specification shows that one of the limitations of the prior art was that the computer user is forced to reprogram the custom configurations of the computer system in the event the primary custom configuration storage became corrupt. Bealkowski teaches nothing different, because it only stores the updated system initializations in the flash ROM, and not in the EPROM. The EPROM only contains the *original* system initializations, and provides no way for the user to update them.

## Application of the cited art to the claims

All of the pending claims are patentably distinct from the cited art. For instance, claim 1 recites, *inter alia*, "a second non-volatile memory operable to store custom system configuration parameters." Although Bealkowski teaches a first and a second non-volatile memory, it does not teach that *both* non-volatile memories are capable of storing custom system configuration parameters. Indeed, Bealkowski instructs that its EPROM has to be removed from the system in order to program it.

As to claim 2, the Examiner contends that it is within the ordinary skill in the art to "substitute a single memory with separate portions for the two memories of Bealkowski." Although it is agreed that *some* separate memories can be combined into a single memory, doing so in the case of Bealkowski destroys the functionality of Bealkowski. Bealkowski purposely desired a first non-volatile memory that was "easily" changed, and a second non-volatile memory that was not easily changed. It nearly impossible to have both of these qualities exist simultaneously in a single memory chip, and it is impossible for these qualities to exist in a single memory chip without specialized circuitry. Such circuitry is not

mentioned in Bealkowski. What is mentioned in Bealkowski is a flash ROM having one set of properties and an EPROM having a very different set of properties.

With regard to claims 3-6, there is no mention in Bealkowski that a *volatile* memory is included in its computer system. Although volatile memories exist in other prior art, no prior art teaches the combination of the features in claim 1 combined with the volatile memory of claims 3-6. Further, if no such volatile memory is present in the prior art, there are also no microprocessors operable to test the volatile memory as described in claims 5 and 6.

Claim 7 includes, among other features, "a volatile memory storing a plurality of custom configuration data", "a first non-volatile memory storing a backup copy of the custom configuration data" and "a second non-volatile memory storing a plurality of default configuration data." Nowhere in the prior art is this combination shown. Bealkowski includes a flash ROM storing custom system initializations and an EPROM storing basic system initializations, but comes nowhere close to teaching the three memories as recited in claim 7. Even when combined with other prior art, the recitations as claimed in claim 7 are not all shown.

The rejection as to claim 8 is traversed for similar reasons to those given above with reference to claim 2.

The recitations of claim 9 are also not shown by Bealkowski, alone or in combination with any other prior art. Bealkowski simply fails to teach "volatile memory means" with "non-volatile memory means for storing a second copy of the customized configuration data," among the other recitations of claim 9. Since Bealkowski fails to include the volatile memory means, there is no way for it to teach a system that is operable to check the validity of the "first copy of the customized configuration data" (which is stored in the volatile memory means of claim 9) as recited in claims 10-13.
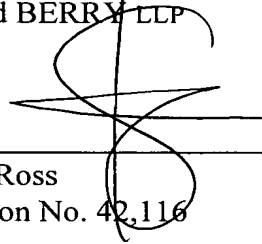
Thus, the independent claims 1, 7, and 9 are patentably distinguished from the cited art, and the claims that depend from these claims are patentable based on this dependency and based on the recitation of each claim as described above.

Reconsideration of the pending claims in light of this amendment and these remarks is respectfully requested.

Respectfully submitted,

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KSR

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